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Shaw The Shaw Group Inc.™

May 8, 2006
Project 103081

Final

Mr. Jay Hodges
U.S. Army Corps of Engineers
106 South 15th Street
CENWO-PM-H
Omaha, NE 68102-1618

RE: *Groundwater Monitoring Report for January 2006*
Duell and Gardner Landfill Site, Dalton Township, Muskegon County, Michigan

Dear Mr. Hodges:

On behalf of U.S. Environmental Protection Agency (USEPA) Region V and the U.S. Army Corps of Engineers (USACE), Shaw Environmental Inc. (Shaw) submits this Groundwater Monitoring Report (GMR) for the January 2006 groundwater sampling event at the Duell & Gardner Landfill. **Figure 1** is a map showing the site location. **Figure 2** is a site map that shows the location of groundwater monitoring wells. Water level measurements from site monitoring wells were gauged on January 10, 2006. Groundwater samples were collected from the corrective action monitoring wells from January 11, 2006 through January 12, 2006 in accordance with the 2004 scope of work (SOW) modifications to the Duell & Gardner Landfill Monitoring Plan (LMP) dated March 4, 2002 which includes purging and sampling utilizing low flow sampling procedures.

This report includes:

- Field data sheets with a chain of custody (**Appendix A**);
- Laboratory reports (**Appendix B**);

A copy of the laboratory data is being transmitted electronically to the MDEQ, as requested.

Sample Identification

Groundwater samples from these wells were collected using low flow sampling procedures. Water samples were collected from the following corrective action monitoring wells:

- RW-1, RW-2, RW-3, RW-4, RW-5
- MW-14D, MW-14I, MW-14S, MW-14E
- MW-17, MW-19, MW-20
- MW-21D, MW-21S, MW-22D
- MW-22S, MW-23D, MW-23S
- MW-25D, MW-25I, MW-25S
- MW-26D, MW-26I, MW-26S
- MW-31, MW-32, MW-33

Field identification numbers presented in the laboratory results correspond to monitoring well identification numbers. Influent samples were collected from the recovery wells RW-4 and RW-5 on January 11, 2006. The laboratory results of the influent O&M samples are included with the laboratory data for this groundwater sampling event. Two duplicate samples and one field blank sample were prepared during this groundwater monitoring event. The duplicate samples were collected from monitoring wells MW-33 and MW-14D and labeled as DUP-1 and DUP-2, respectively. Seven trip blanks were submitted to the laboratory, one blank for each of the seven coolers.

Recovery well RW-5 operated continuously from June 7, 2005 through December 31, 2005. Recovery well RW-5 replaced recovery well RW-1 as an extraction well in the groundwater treatment system. Recovery well RW-4 was re-started on April 7, 2005 and operated continuously through December 31, 2005 The groundwater extraction system was shutdown for a period of 24 hours during changeout of the granular activated carbon (GAC) on December 16, 2005.

Appendix A contains a copy of the field data sheets for the January 10, 2006 through January 12, 2006 gauging and groundwater sampling event. **Appendix B** contains a hard copy of the laboratory analytical data for the January 2006 groundwater sampling event.

Laboratory Analysis

Water samples were submitted to Paragon Analytics, Inc. for laboratory analysis of primary organic volatile compounds (following U.S. EPA Method 8260), secondary organic volatile compounds (following U.S. EPA Method 8270), and other compounds including n,n-dimethylaniline, n-ethylaniline, n-methylaniline, tetramethyl urea, aniline, and crystal violet. Two duplicate samples, one field blank, and seven trip blanks were also submitted to the laboratory for analysis. The laboratory reported that multiple groundwater samples were received with broken bottles. The 1-liter amber bottles for groundwater samples from monitoring wells MW-31, MW-32, and MW-33 and recovery wells RW-4 and RW-5 for

SVOC analysis were received broken. Two 40-milliliter vials from monitoring well MW-33 for VOC analysis were also received broken. Three samples (MW-22, Trip Blank 7, and Trip Blank 12) were received by the laboratory with headspace less than the size of a green pea. Shaw completed a quality assurance/quality control (QA/QC) review of the laboratory data and presented the findings in a memorandum, dated March 28, 2006. A copy of the QA/QC memorandum is provided in **Appendix C**.

Flow Direction Review

Table 1 presents a summary of the water level measurements for the January 10, 2006 groundwater gauging event. The static water level was not collected from recovery well RW-4 because the probe would not fit in the well.

Groundwater elevations and flow patterns for the January 10, 2006 gauging event were compared to the previous flow patterns. **Figure 3** shows a contour map of the static water elevations for January 10, 2006 and the general direction of groundwater flow. The January 2006 data indicates that the groundwater flow at the site has an easterly flow component in the groundwater contours nearer the D&G Landfill. Overall, groundwater flows in a southeasterly direction, which is consistent with historical directions of groundwater flow for the D&G Landfill.

Water Quality Summary

Laboratory results for the January 2006 groundwater sampling event were compared to drinking water criteria and water quality standards established by the Michigan Department of Environmental Quality (MDEQ) for Part 201 (environmental response) and Part 22 (groundwater quality) under Michigan's Natural Resources and Environmental Protection Act (NREPA), Public Act 451.

Figure 4 shows a summary of the groundwater quality for the D&G Landfill. **Table 2** provides a summary of the laboratory results for the groundwater samples collected during the January 2006 sampling event. Analytes detected in groundwater samples from recovery wells RW-1, RW-3, and RW-4 and monitoring wells MW-14I, MW-14D, MW-14D dup, MW-23D, MW-25I, and MW-25S, include chloroform, carbon tetrachloride, chlorobenzene, 1,2-dichlorobenzene, 1,4-dichlorobenzene, tetrachloroethene, n,n-dimethylaniline, n-methylaniline, toluene, and tetramethyl urea at concentrations ranging from 1.2 micrograms per liter (µg/L) to 150 µg/L . Laboratory results followed by a "J" indicate that the laboratory reported an estimated value for analytes identified below the method reporting limit. Estimated concentrations of analytes including acetone, aniline, bis(2-ethylhexyl)phthalate, carbon disulfide, 1,2-dichloroethane, 1,3-dichlorobenzene, diethylphthalate, and n-ethylaniline were reported in recovery well RW-5 and monitoring wells MW-14S, MW-14E, MW-19, MW-21D, MW-21S, MW-22S, MW-23S, MW-25D, MW-26D, MW-26S, MW-31, MW-32, MW-33. In addition, analytes were also reported in the Field Blank.

Table 3 presents a comparison of the laboratory results to Part 22 and Part 201 criteria. A review of this table indicates that the laboratory results for the groundwater samples exceeded the following Part 201 drinking water criteria and Part 22 water quality standards:

Analyte	Well Number	Concentration (µg/L)
Part 201 Criteria		
• Carbon Tetrachloride (5 µg/L)	RW-1	11.0
	MW-25S	39.0
Part 22 Standard		
• Carbon Tetrachloride (5 µg/L)	RW-1	11.0
	MW-25S	39.0
• 1,2-dichlorobenzene (25 µg/L)	RW-3	46/38*
	MW-25S	150/120*

* 1,2-dichlorobenzene is reported by the laboratory by US EPA Method 8260 and Method 8270.

Carbon tetrachloride in recovery well RW-1 and monitoring well MW-25S is the only constituent that exceeds the Part 201 cleanup criteria of 5 µg/L. Carbon tetrachloride in recovery well RW-1 and monitoring well MW-25S also exceeds the Part 22 water quality standards of 5 µg/L. 1,2-dichlorobenzene was detected in recovery well RW-3 and in monitoring well MW-25S by US EPA Method 8260 and Method 8270 at concentrations ranging from 38 µg/L to 150 µg/L. 1,2-dichlorobenzene exceeds the Part 22 water quality standard of 25 µg/L established for 1,2-dichlorobenzene.

Crystal violet analytical methodologies using the high performance liquid chromatography (HPLC) method were used beginning May 2004 to detect the presence of crystal violet using a cyano column with a UV detector. The samples were prepared following Paragon Analytics Standard Operating Procedure 446 Revision 0, which is a modified version of the direct injection procedures described in Method 8330. The primary wavelength is 588 nanometers and the confirmation is 300 nanometers Based on the January 2006 sampling activities, analytical results for crystal violet did not exceeded the laboratory method detection limit of 10 µg/L. Crystal violet has never been detected in any sample during any of the seven monitoring events since May 19, 2004. Shaw recommends that laboratory analysis of crystal violet be eliminated from groundwater monitoring plan.

Drinking water criteria and water quality standards have not been established by the MDEQ for n-methylaniline and tetramethyl urea. N-methylaniline and/or tetramethyl urea were detected in monitoring wells MW-14D, MW-14D dup, MW-14I, MW-21S, and MW-23D, and recovery wells RW-1, RW-3, and RW-4 at concentrations ranging from 1.3 to 110 µg/L.

Bis(2-ethylhexyl)phthalate (BEHP) was detected in monitoring wells MW-14E, MW-26S, MW-31, MW-33, and MW-33 Duplicate (Dup-1) at estimated concentrations ranging from 1.3 µg/L to 2.2 µg/L which are below the reporting limit of 4.7 µg/L. BEHP is a plasticizer that is commonly used in production of polyvinyl chlorides and flexible plastic tubing. According to a 1992 report, Environmental Health Criteria published by the International Program on Chemical Safety, BEHP exhibits low solubility in water and analysis at low concentrations is complicated by contamination from plastic equipment.

Estimated concentrations of acetone were reported in recovery wells RW-1, RW-4, and RW-5 and monitoring wells MW-14D, MW-14D Duplicate (Dup-2), MW-14I, MW-14S, MW-21S, MW-22S, MW-25D, and the Field Blank at 2.2 µg/L to 6 µg/L. The reporting limit for acetone is 25 µg/L. At these concentrations, estimated concentrations of acetone are most likely related to laboratory contamination.

Table 4 provides a historical summary for select constituents from groundwater sampling events at the Duell & Gardner Landfill. **Appendix D** contains concentration versus time diagrams for recovery wells RW-1 RW-2, RW-3, and RW-4 and monitoring wells MW-14I, MW-14D, MW-25I, and MW-25S. The following observations are provided:

- Laboratory results of water samples from monitoring well MW-25S exhibited an increase in concentrations of tetramethyl urea and chloroform compared with historical levels. Shaw will monitor this well closely during the next sampling event.

- N-methylaniline and n,n-dimethylaniline in monitoring wells MW-14I and MW-14D and recovery well RW-4 have been fluctuating with time. Trends in concentrations of n-methylaniline and n,n-dimethylanniline in monitoring wells MW-14I and MW-14D and recovery well RW-4 are not trending downward.

- Recovery well RW-3 has demonstrated elevated levels of chlorobenzene, 1 2-dichlorobenzene, and 1,4-dichlorobenzene since August 2004. The concentrations in recovery well RW-3 show an increasing trend. Shaw will continue to monitor the laboratory results of recovery well RW-3.

Figure 4 shows the approximate location of the combined plumes/nests of organic chemicals detected in groundwater. Organic chemicals in groundwater are limited to recovery wells RW-1 through RW-5 and monitoring well nests MW-14 (S, I, D) and MW-25 (S, I, D). The plume nest of MW-14 (S, I, D, E) and RW-4 consists of n-methylaniline and n,n-dimethylaniline. Chloroform, carbon tetrachloride, 1,2-dichlorobenzene, and tetramethyl urea were detected in the plume nest of MW-25 (S, I, D), RW-1, and RW-3. The location of impacted groundwater is consistent with previous investigations and known extent of groundwater contamination.

Chloroform, carbon tetrachloride, and tetramethyl urea have been detected in recovery well RW-1. Carbon tetrachloride in recovery well RW-1 is the only constituent that exceeds both the Part 201 cleanup criteria and Part 22 water quality standards. Recovery well RW-1 has not been operational since June 5, 2005 when it was replaced by recovery well RW-5. Only estimated concentrations of carbon tetrachloride and acetone were detected in recovery well RW-5. Recovery well RW-3 detected chlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, tetramethyl urea and an estimated concentration of 1,3-dichlorobenzene during this sampling event. 1,2-dichlorobenzene in recovery well RW-3 was detected by

US EPA Method 8260 and Method 8270 at concentrations of 46 µg/L and 38 µg/L, respectively, which exceed the Part 22 water quality standards.

Organic chemicals in recovery well RW-2 were below laboratory method detections limits. Concentrations in this well have decreased; this decline is most likely related to the pump and treat activities conducted over the past two years. Chloroform, carbon tetrachloride, tetrachloroethene, 1,4-dichlorobenzene, and 1,2-dichlorobenzene were detected in monitoring well MW-25S. Carbon tetrachloride exceeded both Part 22 and Part 201 water quality standards; 1,2-dichlorobenzene exceeded Part 22 water quality standards in monitoring well MW-25S. Shaw recommends continued operation of the recovery RW-5.

N-methylaniline and n,n-dimethylaniline in monitoring wells MW-14I and MW-14D and recovery well RW-4 have been fluctuating with time. Trends in concentrations of n-methylaniline and n,n-dimethylaniline in monitoring wells MW-14I and MW-14D and recovery well RW-4 are not trending downward. Shaw recommends that recovery well RW-4 continue operating throughout 2006.

If you have any questions or comments regarding this report, please contact Erik J. Carlson at (734) 367-1022 or Randy Sherman at (904) 636-9360 ext. 120.

Sincerely,
Shaw Environmental, Inc.

Erik J. Carlson, E.I.T.	Randy Sherman, PG, CHMM
Project Engineer	Project Manager

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Attachments	Tables 1 to 4	
	Figures 1 to 4	
	Appendix A	Field data sheets
	Appendix B	Laboratory Analytical Data
	Appendix C	Shaw QA/QC Memorandum
	Appendix D	Water Quality Trend Diagrams

TABLES

TABLE 1
Summary of Water Level Measurements
Duel Gardner Landfill
Muskegon, Michigan
2006

Well Identification	Date Measured	Top of Casing (USGS) (feet)	Ground (USGS) (feet)	Bottom of Screen (feet)	Depth to Bottom (feet)	Depth to Water (feet)	Water Elevation (feet)	Comments
MW-1	1/10/2006	665.40	662.80	654.40	11.00	6.28	659.12	
MW-2	1/10/2006	662.10	660.00	650.60	11.50	5.69	656.41	
MW-3	1/10/2006	661.70	659.65	650.20	11.50	5.39	656.31	
MW-4	1/10/2006	663.10	660.90	NA	NA	6.37	656.73	
MW-05S	1/10/2006	670.29	667.50	657.80	12.49	8.12	662.17	
MW-05D	1/10/2006	668.51	667.45	609.35	59.16	6.31	662.20	
MW-06S	1/10/2006	666.19	663.86	NA	NA	4.66	661.53	
MW-06D	1/10/2006	664.99	663.76	NA	NA	3.44	661.55	
MW-07	1/10/2006	667.23	664.83	654.70	12.53	7.22	660.01	
MW-08	1/10/2006	667.23	664.60	654.60	12.63	7.30	659.93	
MW-09	1/10/2006	667.38	665.12	655.12	12.26	7.98	659.40	
MW-10*	1/10/2006	666.91	663.76	658.71	8.20	7.31	659.60	
MW-11*	1/10/2006	667.11	663.69	NA	NA	7.46	659.65	
MW-12*	1/10/2006	667.21	664.70	655.01	12.20	7.72	659.49	
MW-14S	1/10/2006	670.21	668.01	654.61	15.60	11.38	658.83	
MW-14I	1/10/2006	669.45	667.27	624.45	45.00	10.70	658.75	
MW-14D	1/10/2006	670.95	667.76	604.95	66.00	12.60	658.35	
MW-14E	1/10/2006	670.71	668.18	573.18	97.53	9.23	661.48	
MW-17	1/10/2006	662.84	660.66	652.16	10.68	5.40	657.44	
MW-19	1/10/2006	663.42	660.95	650.95	12.47	6.95	656.47	
MW-20	1/10/2006	662.06	660.18	651.68	10.38	5.24	656.82	
MW-21S	1/10/2006	662.69	660.78	650.78	11.91	4.49	658.20	
MW-21D	1/10/2006	663.25	660.91	590.91	72.34	6.02	657.23	
MW-22S	1/10/2006	662.13	659.83	649.83	12.30	6.26	655.87	
MW-22D	1/10/2006	661.78	659.98	611.58	50.20	5.93	655.85	
MW-23S	1/10/2006	661.43	658.75	648.75	12.68	5.66	655.77	
MW-23D	1/10/2006	661.61	658.74	609.24	52.37	6.16	655.45	
MW-25S	1/10/2006	668.10	666.20	651.95	16.15	9.37	658.73	
MW-25I	1/10/2006	668.21	665.07	621.21	47.00	9.51	658.70	
MW-25D	1/10/2006	667.46	665.86	601.46	66.00	8.54	658.92	
MW-26S	1/10/2006	662.68	661.36	647.76	14.92	5.11	657.57	
MW-26I	1/10/2006	662.74	661.21	617.61	45.13	5.08	657.66	
MW-26D	1/10/2006	663.35	661.29	593.29	70.06	5.29	658.06	
MW-31	1/10/2006	661.61	659.61	651.11	10.50	5.56	656.05	
MW-32	1/10/2006	662.13	660.25	650.98	11.15	5.68	656.45	
MW-33	1/10/2006	664.01	661.55	651.61	12.40	6.12	657.89	
MW-34*	1/10/2006	664.49	661.92	NA	NA	6.77	657.72	
MW-35*	1/10/2006	663.46	661.03	NA	NA	6.29	657.17	
PZ-1*	1/10/2006	672.55	NA	NA	NA	13.72	658.83	
PZ-2*	1/10/2006	667.63	664.37	642.63	25.00	8.67	658.96	
PZ-3*	1/10/2006	668.45	665.65	643.45	25.00	9.81	658.64	
PZ-4*	1/10/2006	670.69	667.85	645.69	25.00	11.91	658.78	
RW-1*	1/10/2006	670.55	667.72	620.55	50.00	11.78	658.77	
RW-2*	1/10/2006	666.54	664.08	625.24	41.30	6.92	659.62	
RW-3*	1/10/2006	664.32	662.01	627.12	37.20	5.22	659.10	
RW-4*	1/10/2006	667.77	665.58	605.77	62.00	-	-	pumping well
RW-5*	1/10/2006	670.81	668.14	623.81	47.00	12.03	658.78	pumping well

Note: * Monitoring wells surveyed by Driesenga & Associates, June 30, 2005.

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	RW-1 O&M/GW 1/12/2006	RW-2 GW 1/12/2006	RW-3 GW 1/12/2006	RW-4 GW 1/11/2006	RW-5 GW 1/11/2006	MW-14D GW 1/12/2006	Dup 2 (MW-14D) 1/12/2006	MW-14I GW 1/12/2006	MW-14S GW 1/12/2006	MW-14E GW 1/12/2006
Volatiles										
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TrichloroTrifluoroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	**4.1J**	<25	<25	**2.3J**	**2.2J**	**2.3J**	**4.1J**	**1.6J**	**6J**	<25
Iodomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1 2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	**3.6**	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	**11**	<1	<1	<1	**0.46J**	<1	<1	<1	<1	<1
1,2-Dichloroethane	**0.99J**	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1 3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	**8.8**	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
M+P-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
O-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	**3.4**	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	**46**	<1	<1	**0.12J**	**0.12J**	<1	<1	<1
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
trans-1 4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	RW-1 O&M/GW 1/12/2006	RW-2 GW 1/12/2006	RW-3 GW 1/12/2006	RW-4 GW 1/11/2006	RW-5 GW 1/11/2006	MW-14D GW 1/12/2006	Dup 2 (MW-14D) 1/12/2006	MW-14I GW 1/12/2006	MW-14S GW 1/12/2006	MW-14E GW 1/12/2006
Semi-Volatiles										
Aniline	<9.4	<9.4	<9.5	<9.7	<9.5	**0.99J**	**0.91J**	<9.4	<9.5	<9.4
Phenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Bis(2-Chloroethyl)ether	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2-Chlorophenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
1,3-Dichlorobenzene	<4.7	<4.7	**0.95J**	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
1,4-Dichlorobenzene	<4.7	<4.7	**3J**	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
1,2-Dichlorobenzene	<4.7	<4.7	**38**	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzyl Alcohol	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Bis(2-Chloroisopropyl ether	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2-Methylphenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
N-Nitroso-di-n-propylamine	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
4-Methylphenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Hexachloroethane	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Nitrobenzene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Isophorone	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2-Nitrophenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,4-Dimethylphenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Bis(2-Chloroethoxy)methane	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,4-Dichlorophenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzoic Acid	<47	<47	<47	<49	<48	<47	<47	<47	<48	<47
1,2,4-Trichlorobenzene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Naphthalene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
4-Chloroaniline	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Hexachloro-1,3-butadiene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
4-Chloro-3-Methylphenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2-Methylnaphthalene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Hexachlorocyclopentadiene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,4,6-Trichlorophenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,4,5-Trichlorophenol	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2-Chloronaphthalene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2-Nitroaniline	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Dimethylphthalate	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,6-Dinitrotoluene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Acenaphthylene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
3-Nitroaniline	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Acenaphthene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,4-Dinitrophenol	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
4-Nitrophenol	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Dibenzofuran	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
2,4-Dinitrotoluene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	RW-1 O&M/GW 1/12/2006	RW-2 GW 1/12/2006	RW-3 GW 1/12/2006	RW-4 GW 1/11/2006	RW-5 GW 1/11/2006	MW-14D GW 1/12/2006	Dup 2 (MW-14D) 1/12/2006	MW-14I GW 1/12/2006	MW-14S GW 1/12/2006	MW-14E GW 1/12/2006
Semi-Volatiles										
Diethylphthalate	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Fluorene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
4-Chlorophenyl-phenylether	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
4-Nitroaniline	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
4,6-Dinitro-2-Methylphenol	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
N-Nitrosodiphenylamine	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
4-Bromophenyl phenylether	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Hexachlorobenzene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Pentachlorophenol	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Phenathrene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Anthracene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Carbazole	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Di-n-Butylphthalate	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Fluoranthene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Pyrene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Butylbenzylphthalate	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzo(a)anthracene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
3,3-Dichlorobenzidine	<19	<19	<19	<20	<19	<19	<19	<19	<19	<19
Chrysene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Bis(2-Ethylhexyl)phthalate	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	**1.9J**
Di-n-Octylphthalate	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzo(b)fluoranthene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzo(k)fluoranthene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzo(a)pyrene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Indeno(1,2,3-cd)pyrene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Dibenzo(ah)anthracene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Benzo(g,h,i)perylene	<4.7	<4.7	<4.7	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
N,N-Dimethylaniline	<4.7	<4.7	<4.7	**3.2J**	<4.8	**4.3J**	**3.8J**	**9.9**	<4.8	<4.7
N-Ethylaniline	<4.7	<4.7	<4.7	<4.9	<4.8	**2.7J**	**2.5J**	<4.7	<4.8	<4.7
N-Methylaniline	<4.7	<4.7	<4.7	**8**	<4.8	**110**	**100**	**1.3J**	<4.8	<4.7
Tetramethylurea	**9.4**	<4.7	**6.4**	<4.9	<4.8	<4.7	<4.7	<4.7	<4.8	<4.7
Crystal Violet	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

All values in ug/L

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	MW-17 GW 1/12/2006	MW-19 GW 1/11/2006	MW-20 GW 1/11/2006	MW-21D GW 1/12/2006	MW-21S GW 1/12/2006	MW-22D GW 1/11/2006	MW-22S GW 1/11/2006	MW-23D GW 1/11/2006	MW-23S GW 1/11/2006	MW-25D GW 1/11/2006
Volatiles										
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TrichloroTrifluoroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	<25	<25	<25	<25	**4.3J**	<25	**4J**	<25	<25	**4.7J**
Iodomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	<1	**0.17J**	<1	<1	<1	<1	**0.43J**	**0.16J**
Methylene Chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene	<1	**0.20J**	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
M+P-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
O-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	**0.17J**
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	MW-17 GW 1/12/2006	MW-19 GW 1/11/2006	MW-20 GW 1/11/2006	MW-21D GW 1/12/2006	MW-21S GW 1/12/2006	MW-22D GW 1/11/2006	MW-22S GW 1/11/2006	MW-23D GW 1/11/2006	MW-23S GW 1/11/2006	MW-25D GW 1/11/2006
Semi-Volatiles										
Aniline	<9.4	<9.8	<10	<9.6	<9.4	<9.4	<9.4	<9.8	<9.8	<9.9
Phenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Bis(2-Chloroethyl)ether	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2-Chlorophenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
1,3-Dichlorobenzene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
1,4-Dichlorobenzene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
1,2-Dichlorobenzene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzyl Alcohol	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Bis(2-Chloroisopropyl)ether	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2-Methylphenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
N-Nitroso-di-n-propylamine	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
4-Methylphenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Hexachloroethane	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Nitrobenzene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Isophorone	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2-Nitrophenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,4-Dimethylphenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Bis(2-Chloroethoxy)methane	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,4-Dichlorophenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzoic Acid	<47	<49	<50	<48	<47	<47	<47	<49	<49	<50
1,2,4-Trichlorobenzene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Naphthalene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
4-Chloroaniline	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Hexachloro-1,3-butadiene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
4-Chloro-3-Methylphenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2-Methylnaphthalene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Hexachlorocyclopentadiene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,4,6-Trichlorophenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,4,5-Trichlorophenol	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2-Chloronaphthalene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2-Nitroaniline	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Dimethylphthalate	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,6-Dinitrotoluene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Acenaphthylene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
3-Nitroaniline	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Acenaphthene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,4-Dinitrophenol	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
4-Nitrophenol	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Dibenzofuran	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
2,4-Dinitrotoluene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5

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Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	MW-17 GW 1/12/2006	MW-19 GW 1/11/2006	MW-20 GW 1/11/2006	MW-21D GW 1/12/2006	MW-21S GW 1/12/2006	MW-22D GW 1/11/2006	MW-22S GW 1/11/2006	MW-23D GW 1/11/2006	MW-23S GW 1/11/2006	MW-25D GW 1/11/2006
Semi-Volatiles										
Diethylphthalate	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Fluorene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
4-Chlorophenyl-phenylether	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
4-Nitroaniline	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
4,6-Dinitro-2-Methylphenol	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
N-Nitrosodiphenylamine	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
4-Bromophenyl phenylether	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Hexachlorobenzene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Pentachlorophenol	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Phenathrene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Anthracene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Carbazole	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Di-n-Butylphthalate	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Fluoranthene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Pyrene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Butylbenzylphthalate	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzo(a)anthracene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
3,3-Dichlorobenzidine	<19	<20	<20	<19	<19	<19	<19	<20	<20	<20
Chrysene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Bis(2-Ethylhexyl)phthalate	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Di-n-Octylphthalate	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzo(b)fluoranthene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzo(k)fluoranthene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzo(a)pyrene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Indeno(1,2,3-cd)pyrene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Dibenzo(ah)anthracene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Benzo(g,h,i)perylene	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
N,N-Dimethylaniline	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
N-Ethylaniline	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
N-Methylaniline	<4.7	<4.9	<5	<4.8	<4.7	<4.7	<4.7	<4.9	<4.9	<5
Tetramethylurea	<4.7	<4.9	<5	<4.8	**3.5J**	<4.7	<4.7	**5.4**	<4.9	<5
Crystal Violet	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

All values in ug/L

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	MW-25I GW 1/11/2006	MW-25S GW 1/11/2006	MW-26D GW 1/11/2006	MW-26I GW 1/11/2006	MW-26S GW 1/11/2006	MW-31 GW 1/11/2006	MW-32 GW 1/11/2006	MW-33 GW 1/11/2006	Dup 1 (MW-33) 1/11/2006	Trip Blank (5) GW 1/11/2006
Volatiles										
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TrichloroTrifluoroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Iodomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	**0.14J**	**0.11J**	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	**1.8**	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	**1.2**	**39**	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene	<1	<1	<1	<1	<1	<1	**0.19J**	**0.28J**	**0.30J**	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Tetrachloroethene	<1	**2**	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
M+P-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
O-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	**0.26J**	**10**	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	**6.2**	**150**	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	MW-25I GW 1/11/2006	MW-25S GW 1/11/2006	MW-26D GW 1/11/2006	MW-26I GW 1/11/2006	MW-26S GW 1/11/2006	MW-31 GW 1/11/2006	MW-32 GW 1/11/2006	MW-33 GW 1/11/2006	Dup 1 (MW-33) 1/11/2006	Trip Blank (5) GW 1/11/2006
Semi-Volatiles										
Aniline	<9.6	<10	<9.8	<9.5	<9.9	<9.4	<9.4	<9.4	<9.6	
Phenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Bis(2-Chloroethyl)ether	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2-Chlorophenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
1,3-Dichlorobenzene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
1,4-Dichlorobenzene	<4.8	**8.6**	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
1,2-Dichlorobenzene	**3.4J**	**120**	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzyl Alcohol	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Bis(2-Chloroisopropyl)ether	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2-Methylphenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
N-Nitroso-di-n-propylamine	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
4-Methylphenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Hexachloroethane	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Nitrobenzene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Isophorone	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2-Nitrophenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,4-Dimethylphenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Bis(2-Chloroethoxy)methane	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,4-Dichlorophenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzoic Acid	<48	<50	<49	<48	<49	<47	<47	<47	<48	
1,2,4-Trichlorobenzene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Naphthalene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
4-Chloroaniline	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Hexachloro-1,3-butadiene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
4-Chloro-3-Methylphenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2-Methylnaphthalene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Hexachlorocyclopentadiene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,4,6-Trichlorophenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,4,5-Trichlorophenol	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2-Chloronaphthalene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2-Nitroaniline	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Dimethylphthalate	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,6-Dinitrotoluene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Acenaphthylene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
3-Nitroaniline	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Acenaphthene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,4-Dinitrophenol	<19	<20	<20	<19	<20	<19	<19	<19	<19	
4-Nitrophenol	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Dibenzofuran	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
2,4-Dinitrotoluene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	

TABLE 2
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First 2006 Sampling Event
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Muskegon, Michigan

ANALYTE	MW-25I GW 1/11/2006	MW-25S GW 1/11/2006	MW-26D GW 1/11/2006	MW-26I GW 1/11/2006	MW-26S GW 1/11/2006	MW-31 GW 1/11/2006	MW-32 GW 1/11/2006	MW-33 GW 1/11/2006	Dup 1 (MW-33) 1/11/2006	Trip Blank (5) GW 1/11/2006
Semi-Volatiles										
Diethylphthalate	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	**0.88J**	<4.8	
Fluorene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
4-Chlorophenyl-phenylether	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
4-Nitroaniline	<19	<20	<20	<19	<20	<19	<19	<19	<19	
4,6-Dinitro-2-Methylphenol	<19	<20	<20	<19	<20	<19	<19	<19	<19	
N-Nitrosodiphenylamine	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
4-Bromophenyl phenylether	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Hexachlorobenzene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Pentachlorophenol	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Phenathrene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Anthracene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Carbazole	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Di-n-Butylphthalate	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Fluoranthene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Pyrene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Butylbenzylphthalate	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzo(a)anthracene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
3,3-Dichlorobenzidine	<19	<20	<20	<19	<20	<19	<19	<19	<19	
Chrysene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Bis(2-Ethylhexyl)phthalate	<4.8	<5	<4.9	<4.8	**1.3J**	**2.1J**	<4.7	**2.2J**	**1.5J**	
Di-n-Octylphthalate	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzo(b)fluoranthene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzo(k)fluoranthene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzo(a)pyrene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Indeno(1,2,3-cd)pyrene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Dibenzo(ah)anthracene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Benzo(g,h,i)perylene	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
N,N-Dimethylaniline	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
N-Ethylaniline	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
N-Methylaniline	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Tetramethylurea	<4.8	<5	<4.9	<4.8	<4.9	<4.7	<4.7	<4.7	<4.8	
Crystal Violet	<10	<10	<10	<10	<10	<10	<10	<10	<10	

All values in ug/L

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	Trip Blank (7) GW 1/12/2006	Trip Blank (12) GW 1/12/2006	Trip Blank (17) GW 1/12/2006	Trip Blank (22) GW 1/11/2006	Trip Blank (27) GW 1/11/2006	Trip Blank (36) GW 1/12/2006	Field Blank GW 1/12/2006
Volatiles							
Chloromethane	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1
TrichloroTrifluoroethane	<1	<1	<1	<1	<1	<1	<1
Acetone	<25	<25	<25	<25	<25	<25	**3.4J**
Iodomethane	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1
2-Butanone	<25	<25	<25	<25	<25	<25	<25
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	**0.87J**
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	<50	<50	<50	<50	<50	<50	<50
Toluene	**1.3**	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	<50	<50	<50	<50	<50	<50	<50
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1
M+P Xylene	<1	<1	<1	<1	<1	<1	<1
Xylenes, total	<3	<3	<3	<3	<3	<3	<3
O-Xylene	<1	<1	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2
trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	Trip Blank (7) GW 1/12/2006	Trip Blank (12) GW 1/12/2006	Trip Blank (17) GW 1/12/2006	Trip Blank (22) GW 1/11/2006	Trip Blank (27) GW 1/11/2006	Trip Blank (36) GW 1/12/2006	Field Blank GW 1/12/2006
Semi-Volatiles							
Aniline							
Phenol							
Bis(2-Chloroethyl)ether							
2-Chlorophenol							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
1,2-Dichlorobenzene							
Benzyl Alcohol							
Bis(2-Chloroisopropyl)ether							
2-Methylphenol							
N-Nitroso-di-n-propylamine							
4-Methylphenol							
Hexachloroethane							
Nitrobenzene							
Isophorone							
2-Nitrophenol							
2,4-Dimethylphenol							
Bis(2-Chloroethoxy)methane							
2,4-Dichlorophenol							
Benzoic Acid							
1,2,4-Trichlorobenzene							
Naphthalene							
4-Chloroaniline							
Hexachloro-1,3-butadiene							
4-Chloro-3-Methylphenol							
2-Methylnaphthalene							
Hexachlorocyclopentadiene							
2,4,6-Trichlorophenol							
2,4,5-Trichlorophenol							
2-Chloronaphthalene							
2-Nitroaniline							
Dimethylphthalate							
2,6-Dinitrotoluene							
Acenaphthylene							
3-Nitroaniline							
Acenaphthene							
2,4-Dinitrophenol							
4-Nitrophenol							
Dibenzofuran							
2,4-Dinitrotoluene							

TABLE 2
Summary of Laboratory Results for Groundwater Samples
First 2006 Sampling Event
Duell and Gardner Landfill
Muskegon, Michigan

ANALYTE	Trip Blank (7) GW 1/12/2006	Trip Blank (12) GW 1/12/2006	Trip Blank (17) GW 1/12/2006	Trip Blank (22) GW 1/11/2006	Trip Blank (27) GW 1/11/2006	Trip Blank (36) GW 1/12/2006	Field Blank GW 1/12/2006
Semi-Volatiles							
Diethy phthalate							
Fluorene							
4-Chlorophenyl-phenylether							
4-Nitroaniline							
4,6-Dinitro-2-Methylphenol							
N-Nitrosodiphenylamine							
4-Bromophenyl phenylether							
Hexachlorobenzene							
Pentachlorophenol							
Phenathrene							
Anthracene							
Carbazole							
Di-n-Butylphthalate							
Fluoranthene							
Pyrene							
Butylbenzylphthalate							
Benzo(a)anthracene							
3,3-Dichlorobenzidine							
Chrysene							
Bis(2-Ethylhexyl)phthalate							
Di-n-Octylphthalate							
Benzo(b)fluoranthene							
Benzo(k)fluoranthene							
Benzo(a)pyrene							
Indeno(1,2,3-cd)pyrene							
Dibenzo(ah)anthracene							
Benzo(g,h,i)perylene							
N,N-Dimethylaniline							
N-Ethylaniline							
N-Methylaniline							
Tetramethylurea							
Crystal Violet							

All values in ug/L

TABLE 3
Comparison of Groundwater Laboratory Results to Part 22 and Part 201 Criteria
Duell and Gardner Landfill
Muskegon, Michigan

all values in ug/L

ANALYTE	PART 22 Criteria	PART 201 Criteria	RW-1 1/12/2006	RW-3 1/12/2006	RW-4 1/11/2006	RW-5 1/11/2006	MW-14D 1/12/2006	MW-14I 1/12/2006	MW-25I 1/11/2006	MW-25S 1/11/2006
Volatiles										
Chloroform	20	80	3.6						1.2	1.8
Carbon tetrachloride	5	5	**11**			0.46J				**39**
1,2-Dichlorobenzene[4]	25	600		**46 / 38**			0.12J / ND		6.2 / 3.4J	**150 / 120**
1,4-Dichlorobenzene[4]	15	75		3.4 / 3J						10 / 8.6
Chlorobenzene	15	100		8.8						
Tetrachloroethene	NA	5								2
Semi-Volatiles										
N,N-Dimethylaniline	16	16			3.2J		4.3	9.9		
N-Methylaniline	NA	NA			8		110	1.3J		
Tetramethylurea	NA	NA	9.4	6.4						

Notes: 1) Bold values exceed the MDEQ Part 201 cleanup criteria for groundwater protective of drinking water
2) Shaded values exceed the MDEQ Part 22 groundwater discharge criteria
3) NA indicates that MDEQ has not established a criteria for Part 201 and/or Part 22.
4) 1,2-Dichlorobenzene and 1,4-Dichlorobenzene are reported by the laboratory by US EPA Method 8260 and Method 8270

TABLE 4

Site Water Quality Data
Duell and Gardner Landfill
Muskegon, Michigan

WELL ID	DATE	Chloroform	Carbon Tetrachloride	Trichloroethene	Toluene	Aniline	N,N-Dimethylaniline	N-Methylaniline	2-Ethylaniline	Tetramethyl Urea	Phenol	Butanimide	3-Methyl-Benzenamine	P-Toluidine	N-Ethylaniline
PART 201 CRITERIA		80	5	5	790	53	16	NA	NA	NA	NA	NA	NA	15	NA
PART 22 STANDARD		20	5	5	35	60	16	NA	NA	NA	35	NA	NA	4.5	NA
RW-1 (TW-1)	7/1/2000	4.5	11	ND	ND	ND	ND	ND	ND	59	ND	ND	ND	ND	NA
	10/1/2000	11	22	ND	ND	ND	ND	ND	ND	110	ND	ND	ND	ND	NA
	12/1/2000	3.4	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	4/1/2001	66	130	ND	ND	ND	ND	ND	ND	260	ND	ND	ND	ND	NA
	6/27/2001	8.9	22	ND	ND	36	ND	ND	NA	ND	ND	NA	NA	ND	ND
	6/28/2001	8.6	18	ND	ND	ND	ND	ND	NA	48	ND	NA	NA	ND	ND
	6/29/2001	6.8	14	ND	ND	ND	ND	ND	NA	50	ND	NA	NA	ND	ND
	6/30/2001	4.4	8.9	ND	ND	ND	ND	ND	NA	59	ND	NA	NA	ND	ND
	7/1/2001	3.9	8.3	ND	ND	ND	ND	ND	NA	42	ND	NA	NA	ND	ND
	7/2/2001	4.0	7.5	ND	ND	ND	ND	ND	NA	43	ND	NA	NA	ND	ND
	7/3/2001	3.7	8	ND	ND	ND	ND	ND	NA	40	ND	NA	NA	ND	ND
	7/10/2001	3.8	18	ND	ND	ND	ND	ND	NA	34	ND	NA	NA	NA	ND
	7/20/2001	3.2	34	ND	ND	ND	ND	ND	NA	17	ND	NA	NA	NA	ND
	7/25/2001	3.8	21	ND	ND	ND	ND	ND	NA	15	ND	NA	NA	NA	ND
	8/6/2001	4.4	13	ND	ND	ND	ND	ND	NA	11	ND	NA	NA	NA	ND
	8/14/2001	4.2	12	ND	ND	ND	ND	ND	NA	13	ND	NA	NA	NA	ND
	8/20/2001	5.4	6.5	ND	ND	ND	ND	ND	NA	15	ND	NA	NA	NA	ND
	8/27/2001	8.9	8.1	ND	ND	ND	ND	ND	NA	48	ND	NA	NA	NA	ND
	9/6/2001	3.3	8.3	ND	ND	ND	ND	ND	NA	15	ND	NA	NA	NA	ND
	9/13/2001	4.8	12	ND	ND	ND	ND	ND	NA	16	ND	NA	NA	NA	ND
	9/17/2001	3.2	10	ND	ND	ND	ND	ND	ND	9	ND	NA	NA	NA	ND
	9/25/2001	2.8	12	ND	ND	ND	ND	ND	ND	6.4	ND	NA	NA	NA	ND
	10/18/2001	2.6	11	ND	ND	ND	ND	ND	ND	6.8	ND	NA	NA	NA	ND
	11/5/2001	3.1	9.3	ND	ND	ND	ND	ND	ND	12	ND	NA	NA	NA	ND
	12/7/2001	ND	8.6	ND	ND	ND	ND	ND	ND	9.4	ND	NA	NA	NA	ND
	4/4/2002	22	25	ND	ND	ND	ND	ND	NA	17	ND	NA	NA	NA	ND
	5/30/2002	8.4	18	ND	ND	ND	ND	ND	NA	13	ND	NA	NA	NA	ND
	6/26/2002	8.1	21	ND	ND	ND	ND	ND	NA	18	ND	NA	NA	NA	ND
	7/24/2002	5.8	40	ND	ND	ND	ND	ND	NA	6.5	ND	NA	NA	NA	ND
	9/30/2002	5.3	20	ND	ND	ND	ND	ND	ND	11	ND	NA	NA	NA	ND
	10/31/2002	3.4	15	ND	ND	ND	ND	ND	ND	7.7	ND	NA	NA	NA	ND
	12/5/2002	2.1	12	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	2/27/2003	3.1	9.4	ND	ND	ND	ND	ND	NA	12	ND	NA	NA	NA	ND
	3/27/2003	2.2	8.8	ND	ND	ND	ND	ND	NA	5.8	ND	NA	NA	NA	ND
	4/2/2003	3.7	8.6	ND	ND	ND	ND	ND	NA	8.1	ND	NA	NA	NA	ND
	6/17/2003	30	48.0	ND	ND	ND	ND	ND	NA	110	ND	NA	NA	NA	ND
	9/25/2003	6.3	9.1	ND	ND	ND	ND	ND	NA	35	ND	NA	NA	NA	ND
	12/17/2003	3.5	19.0	ND	ND	ND	ND	ND	NA	11	ND	NA	NA	NA	ND
	5/19/2004	5.4	17.0	ND	ND	ND	ND	ND	NA	16	ND	NA	NA	NA	ND
	8/16/2004	4.1	20.0	ND	ND	ND	ND	ND	NA	20	ND	NA	NA	NA	ND
	12/16/2004	1.6	9.2	ND	ND	ND	ND	ND	NA	13	ND	NA	NA	NA	ND
	4/26/2005	4.8	9.3	ND	ND	ND	ND	ND	NA	25	ND	NA	NA	NA	ND
	7/21/2005	ND	2.0	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/12/2006	3.6	11.0	ND	ND	ND	ND	ND	NA	9.4	ND	NA	NA	NA	ND
RW-2 (near MW-13)	5/1/2001	1.2	0.7	1.8	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/14/2001	ND	ND	ND	ND	ND	ND	ND	NA	8.5	ND	NA	NA	NA	NA
	10/18/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/4/2002	ND	ND	ND	ND	ND	ND	ND	NA	17	ND	NA	NA	NA	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	17	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	73	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	24	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	86	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/21/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
RW-3 (near GP-4-9)	5/1/2001	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/14/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	NA
	10/18/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/4/2002	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	10	ND	NA	NA	NA	ND
	7/21/2005	ND	ND	ND	ND	ND	ND	ND	NA	15	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	ND	ND	ND	NA	6.4	ND	NA	NA	NA	ND

TABLE 4
Site Water Quality Data
Duell and Gardner Landfill
Muskegon, Michigan

WELL ID	DATE	Chloroform	Carbon Tetrachloride	Trichloroethene	Toluene	Aniline	N,N-Dimethylaniline	N-Methylaniline	2-Ethylaniline	Tetramethyl Urea	Phenol	Butanimide	3-Methyl-Benzenamine	P-Toluidine	N-Ethylaniline
PART 201 CRITERIA		80	5	5	790	53	16	NA	NA	NA	NA	NA	NA	15	NA
PART 22 STANDARD		20	5	5	35	60	16	NA	NA	NA	35	NA	NA	4.5	NA
RW-4 (near MW-14)	5/1/2001	ND	ND	ND	ND	ND	30	26	ND	ND	ND	ND	ND	ND	NA
	6/27/2001	ND	ND	ND	ND	ND	25	30	ND	ND	ND	ND	ND	ND	NA
	6/28/2001	ND	ND	ND	ND	ND	17	24	ND	ND	ND	ND	ND	ND	NA
	6/29/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	6/30/2001	ND	ND	ND	ND	ND	17	24	ND	ND	ND	ND	ND	ND	NA
	7/1/2001	ND	ND	ND	ND	ND	16	27	ND	ND	ND	ND	ND	ND	NA
	7/2/2001	ND	ND	ND	ND	ND	18	26	ND	ND	ND	ND	ND	ND	NA
	7/3/2001	ND	ND	ND	ND	ND	16	24	ND	ND	ND	ND	ND	ND	NA
	7/10/2001	ND	ND	ND	ND	ND	10	18	ND	ND	ND	ND	ND	ND	NA
	7/20/2001	ND	ND	ND	ND	ND	8.3	15	ND	ND	ND	ND	ND	ND	NA
	7/25/2001	ND	ND	ND	ND	ND	12	21	ND	ND	ND	ND	ND	ND	NA
	8/6/2001	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	NA
	8/14/2001	ND	ND	ND	ND	ND	8.7	15	ND	ND	ND	ND	ND	ND	NA
	8/20/2001	ND	ND	ND	ND	ND	7.8	16	ND	ND	ND	ND	ND	ND	NA
	8/27/2001	ND	ND	ND	ND	ND	8.4	14	ND	ND	ND	ND	ND	ND	NA
	9/6/2001	ND	ND	ND	ND	ND	8.5	14	ND	ND	ND	ND	ND	ND	NA
	9/13/2001	ND	ND	ND	ND	ND	6.6	9.4	ND	ND	ND	ND	ND	ND	NA
	9/17/2001	ND	ND	ND	ND	ND	6.7	12	ND	ND	ND	ND	ND	ND	NA
	9/25/2001	ND	ND	ND	ND	ND	5.6	11	ND	ND	ND	ND	ND	ND	NA
	10/18/2001	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	NA
	11/5/2001	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	NA
	12/7/2001	ND	ND	ND	ND	ND	ND	8.0	ND	ND	ND	ND	ND	ND	NA
	4/4/2002	ND	ND	ND	ND	ND	11	22	ND	ND	ND	ND	ND	ND	NA
	12/5/2002	ND	ND	ND	ND	ND	8.5	14	ND	ND	ND	ND	ND	ND	NA
	4/2/2003	ND	ND	ND	ND	ND	7.8	15	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	13	14	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	4.7	14	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	3.9	10	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	3.2	8	NA	ND	ND	NA	NA	NA	ND
RW-5	7/20/2005	3.2	9.0	ND	ND	ND	ND	ND	NA	25	ND	NA	NA	NA	ND
	1/11/2006	ND	0.5	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
MW-7	6/27/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND
MW-14S	7/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	12/1/2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NA
	4/1/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	6/14/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	NA
	10/17/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND
	4/4/2002	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/27/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
MW-14I	7/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.7	NA
	10/1/2000	ND	ND	ND	ND	ND	24	ND	ND	ND	ND	ND	ND	ND	NA
	12/1/2000	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	NS	NA
	4/1/2001	ND	ND	ND	ND	ND	24	ND	ND	ND	ND	ND	ND	ND	NA
	6/14/2001	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	NA
	10/17/2001	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	NA	NA
	4/4/2002	ND	ND	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	ND	NA
	10/1/2002	ND	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND	NA	NA
	12/5/2002	ND	ND	ND	ND	ND	18	ND	ND	ND	ND	ND	ND	ND	NA
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	12	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	10	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	7.8	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	10	6.9	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	5.3	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	13	5	NA	ND	ND	NA	NA	NA	ND
	4/27/2005	ND	ND	ND	ND	ND	14	3.3	NA	ND	ND	NA	NA	NA	ND
	7/21/2005	ND	ND	ND	ND	ND	7.3	5.6	NA	ND	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	ND	9.9	1.3	NA	ND	ND	NA	NA	NA	ND

TABLE 4

Site Water Quality Data
Duell and Gardner Landfill
Muskegon, Michigan

WELL ID	DATE	Chloroform	Carbon Tetrachloride	Trichloroethene	Toluene	Aniline	N,N-Dimethylaniline	N-Methylaniline	2-Ethylaniline	Tetramethyl Urea	Phenol	Butanimide	3-Methyl-Benzenamine	P-Toluidine	N-Ethylaniline
PART 201 CRITERIA		80	5	5	790	53	16	NA	NA	NA	NA	NA	NA	15	NA
PART 22 STANDARD		20	5	5	35	60	16	NA	NA	NA	35	NA	NA	4.5	NA
MW-1-D	7/1/2000	ND	ND	ND	ND	ND	ND	78	ND	ND	ND	ND	ND	ND	NA
	10/1/2000	ND	ND	ND	ND	ND	29	87	ND	ND	ND	ND	ND	ND	NA
	12/1/2000	ND	ND	ND	ND	ND	NS	NS	ND	ND	ND	ND	ND	ND	NA
	4/1/2001	ND	ND	ND	ND	ND	22	ND	ND	ND	ND	ND	ND	ND	NA
	6/14/2001	ND	ND	ND	ND	ND	14	73	ND	ND	ND	ND	ND	ND	NA
	10/17/2001	ND	ND	ND	ND	ND	19	120	ND	ND	ND	ND	ND	ND	NA
	4/4/2002	ND	ND	ND	ND	ND	15	60	ND	ND	ND	ND	ND	ND	NA
	10/1/2002	ND	ND	ND	ND	ND	14	120	ND	ND	ND	ND	ND	ND	NA
	12/5/2002	ND	ND	ND	ND	ND	17	100	ND	ND	ND	ND	ND	ND	NA
	4/2/2003	ND	ND	ND	ND	ND	13	79	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	12	59	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	9.9	160	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	12	150	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	7.9	130	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	11	76	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	6.5	140	NA	ND	ND	NA	NA	NA	ND
	4/27/2005	ND	ND	ND	ND	ND	6.6	150	NA	ND	ND	NA	NA	NA	ND
	7/21/2005	ND	ND	ND	ND	ND	7.2	140	NA	ND	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	0.99	4.3	110	NA	ND	ND	NA	NA	NA	2.7
MW-1-I	7/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	12/1/2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NA
	4/1/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/17/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/12/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-19	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
MW-20	9/30/2002	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
MW-21S	10/18/2001	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	ND	ND	ND	ND	3.5	ND	NA	NA	NA	ND
MW-21D	10/18/2001	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/12/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-22D	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-22S	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-23D	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	6.1	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	5.4	ND	NA	NA	NA	ND
MW-23S	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-25S	7/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	ND	NA
	10/1/2000	46	110	ND	ND	ND	ND	ND	ND	8	ND	ND	ND	ND	NA
	12/1/2000	14	74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	4/1/2001	45	76	ND	ND	ND	ND	ND	ND	140	ND	ND	ND	ND	NA
	6/14/2001	ND	9.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/16/2001	11	110	ND	ND	ND	ND	ND	ND	44	ND	ND	ND	ND	NA
	4/3/2002	6.5	35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/1/2002	16	190	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	12/5/2002	1.1	55	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	4/2/2003	ND	7.3	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	11	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	2.3	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	1.4	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	1.8	39	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND

TABLE 4
Site Water Quality Data
Duell and Gardner Landfill
Muskegon, Michigan

WELL ID	DATE	Chloroform	Carbon Tetrachloride	Trichloroethene	Toluene	Aniline	N,N-Dimethylaniline	N-Methylaniline	2-Ethylaniline	Tetramethyl Urea	Phenol	Butanimide	3-Methyl-Benzenamine	P-Toluidine	N-Ethylaniline
PART 201 CRITERIA		80	5	5	790	53	16	NA	NA	NA	NA	NA	NA	15	NA
PART 22 STANDARD		20	5	5	35	60	16	NA	NA	NA	35	NA	NA	4.5	NA
MW-2S	7/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	12/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	4/1/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	6/14/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	NA
	10/16/2001	ND	ND	ND	ND	ND	ND	ND	NA	8.4	ND	NA	NA	ND	ND
	4/4/2002	ND	ND	ND	ND	ND	ND	ND	NA	28	ND	NA	NA	ND	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	32	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	5.8	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/21/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	1.2	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
MW-2D	7/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	10/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	NA
	12/1/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	4/1/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
	6/14/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	NA
	10/16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/4/2002	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	NA
	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
MW-26S	10/17/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND
	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-26I	10/17/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND
	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-26D	10/17/2001	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	ND	ND
	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
MW-31	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
MW-32	9/30/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	0.19	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND

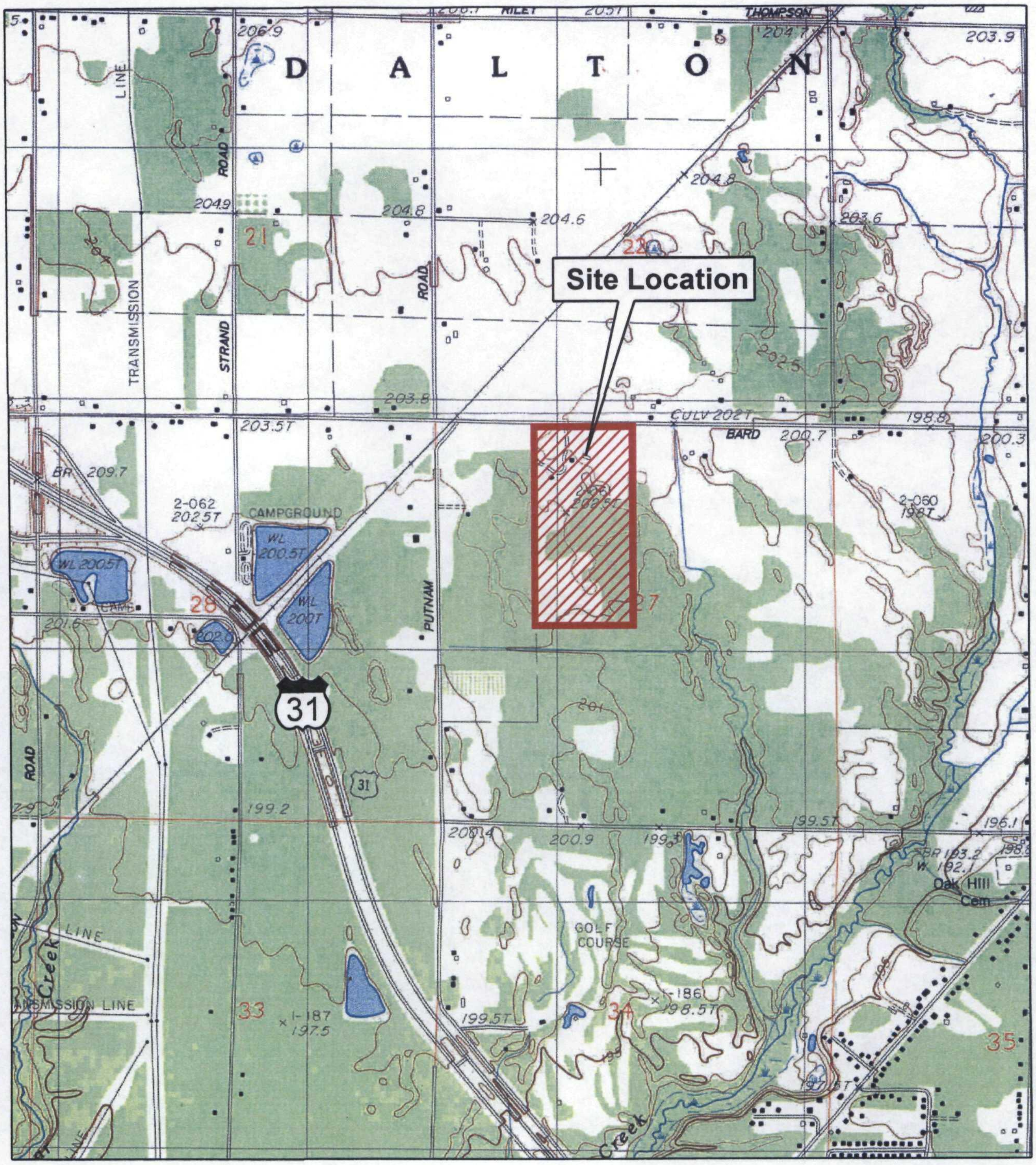
TABLE 4
Site Water Quality Data
Duell and Gardner Landfill
Muskegon, Michigan

		Chloroform	Carbon Tetrachloride	Trichloroethene	Toluene	Aniline	N,N-Dimethylaniline	N-Methylaniline	2-Ethylaniline	Tetramethyl Urea	Phenol	Butanimide	3-Methyl-Benzenamine	P-Toluidine	N-Ethylaniline
PART 201 CRITERIA		**80**	**5**	**5**	**790**	**53**	**16**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**15**	**NA**
PART 22 STANDARD		**20**	**5**	**5**	**35**	**60**	**16**	**NA**	**NA**	**NA**	**35**	**NA**	**NA**	**4.5**	**NA**
WELL ID	**DATE**														
MW-3[illegible]	10/1/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	12/5/2002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
	4/2/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	6/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	9/25/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/17/2003	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	5/19/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	8/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	12/16/2004	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	4/26/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	7/20/2005	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
	1/11/2006	ND	ND	ND	**0.28**	ND	ND	ND	NA	ND	ND	NA	NA	NA	ND
MW-3[illegible] (near MW-16)	5/1/2001	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/2001	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
	4/3/2002	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3[illegible] (near MW-18)	5/1/2001	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/2001	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
	4/3/2002	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note
All values in micrograms/liter
ND = Not Detected
NS = Not Sampled
NA = Not Available
* = Data for IBP for 6/30/01 shows a detection of chloroform and carbon tetrachloride. Since these compounds were not detected in any of the other sampling events it is likely to assume that these concentrations were result of a mislabeled bottle with RW-1 samples on the same day. The concentrations detected mimic those of RW-1

N:\Commercial projects\USACE Duell\Gardner Monitoring 2006

FIGURES



Taken from the
TWIN LAKE, MICH.
7.5 Series U.S.G.S. Topographic Quadrangle
PROVISIONAL EDITION
1985
43086-C2-TM-024

APPROXIMATE SCALE IN FEET
0 1000 2000 3000

Shaw Environmental, Inc.

DATE 3/10/06
DWN DGS
APP JMA
REV NAM
PROJECT NO.
103081

FIGURE 1
DUELL AND GARDNER LANDFILL
DALTON TOWNSHIP, MICHIGAN

SITE LOCATION MAP

File: N:\CADDATA\DWG\Duell-Gardner\103081-2005 GW EVENTS\ProjectDwgs\LVDG_USGS1.dwg Layout: 2006-03-10-Fig1 User: nancy.mcpherson Mar 10, 2006 - 2:45pm

XREF Files: IMAGE Files: DG-USGS.jpg

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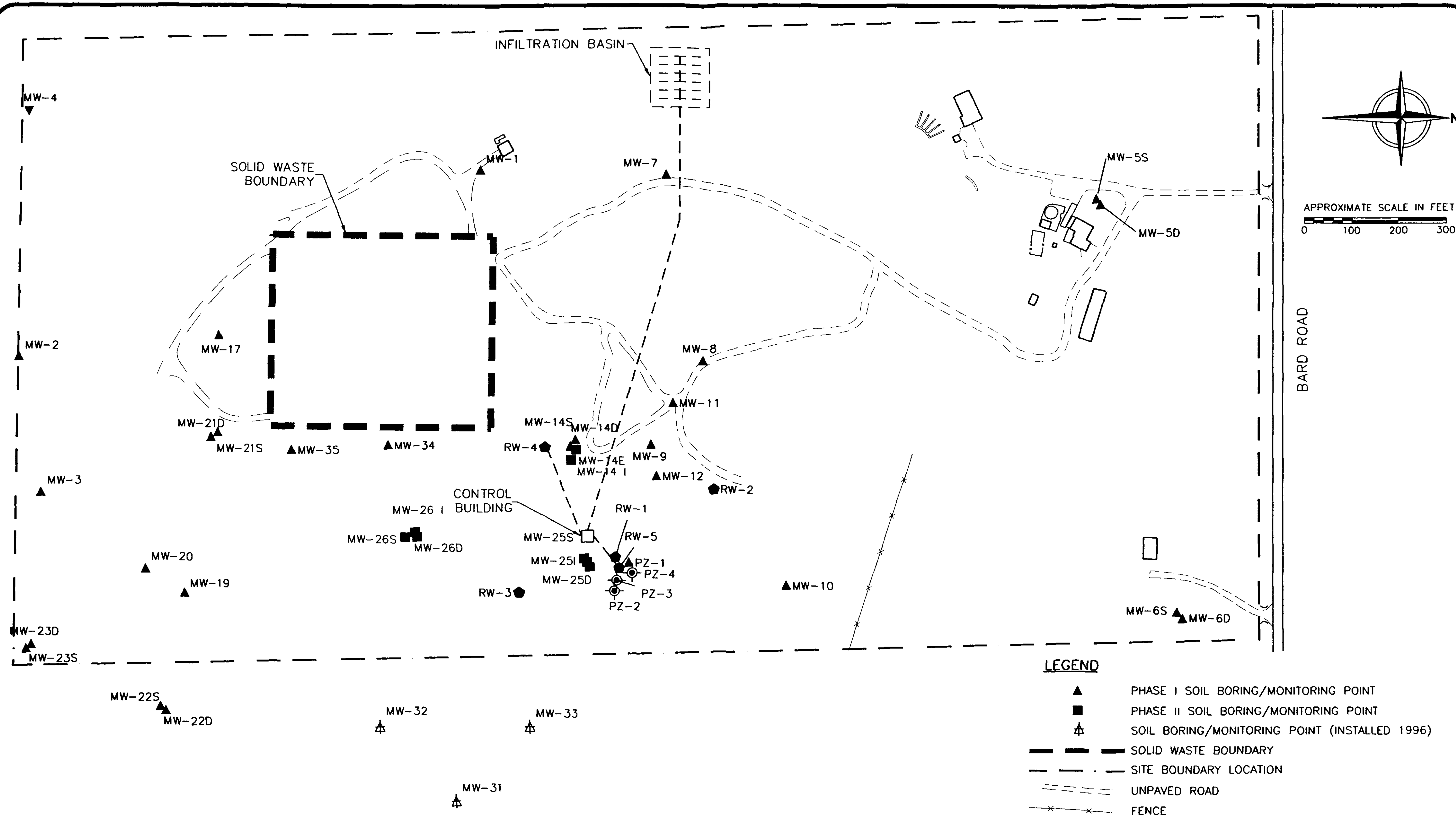

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MAP MODIFIED FROM EARTH TECH PDI REPORT, NOV 1996 AND ADRIAN BROWN "PROPOSED PUMPING SCHEMATIC", MAY 2001.

DATE 3/10/06
DWN ACE
APP GRS
REV NAM
PROJECT NO. 103081

FIGURE 2
DUELL AND GARDNER LANDFILL
DALTON TOWNSHIP, MICHIGAN

SITE MAP

File: N:\CADDATA\DWG\Duell-Gardner\103081-2005 GW EVENTS\ProjectDwgs\LVDGSM02.dwg Layout: 2006-3-10-Fig2 User: nancy.mcpherson Mar 10, 2006 - 2:58pm

XREF Files: IMAGE Files:

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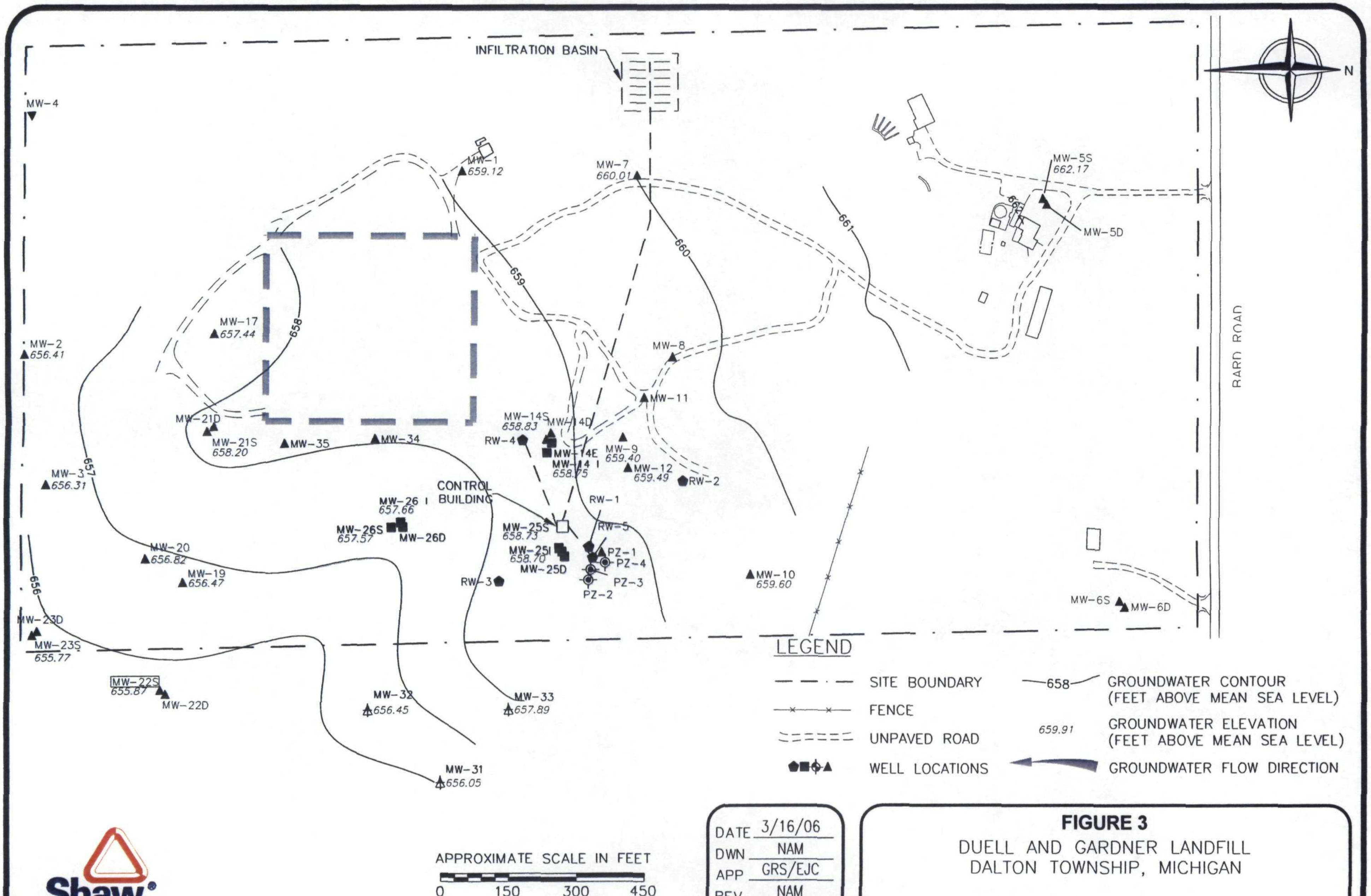
XREF Files: IMAGE Files:

File: N:\CADDATA\DWG\Duell-Gardner\103081-2006 GW EVENTS\ProjectDwgs\LVDGWGM2006-01-10.dwg Layout: New Coordinates - 01-10-06 User: jason.a.whitman Apr 19, 2006 - 4:13pm



TAKEN FROM: EARTHTECH PDI REPORT, 11/96

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DATE	3/16/06
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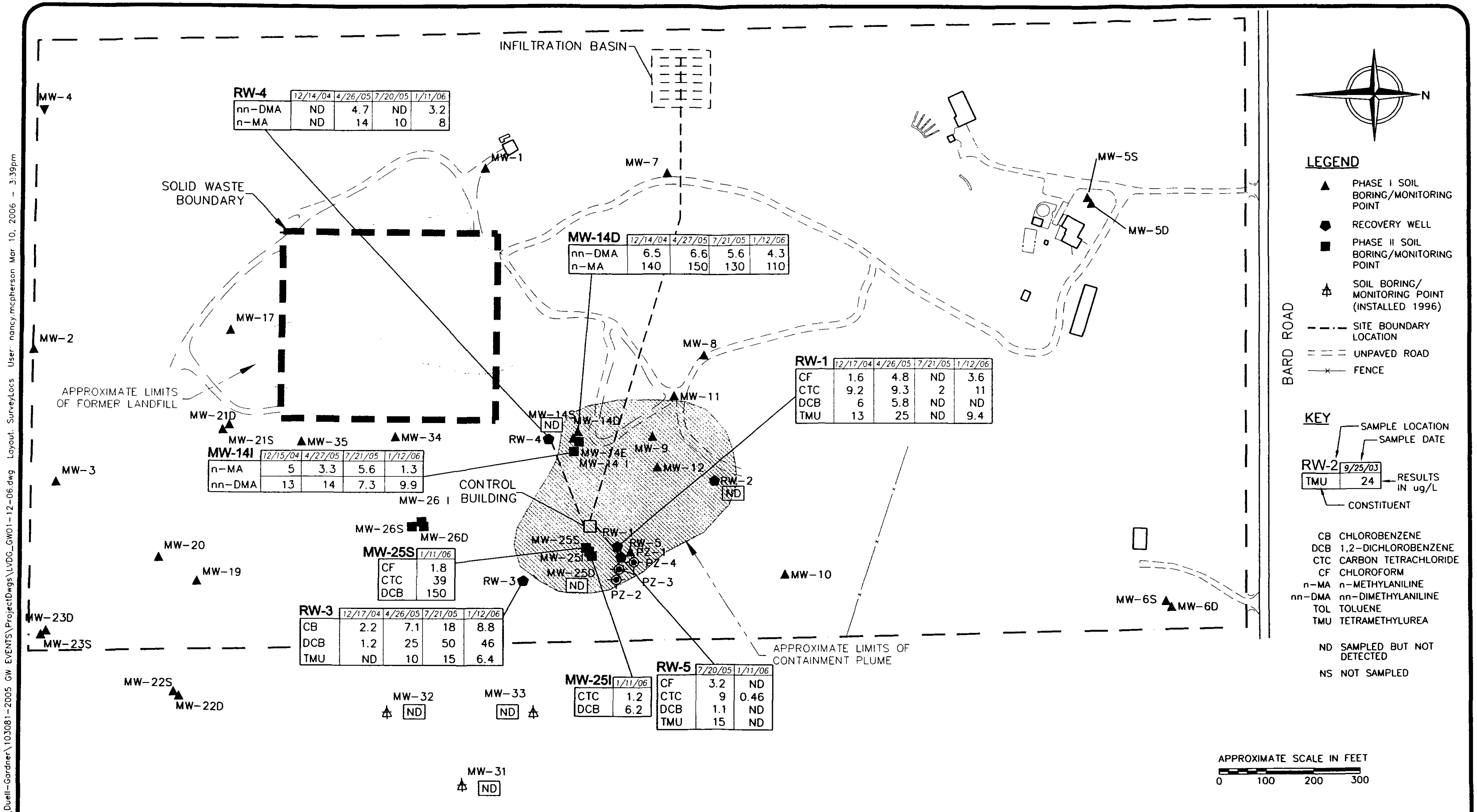
PROJECT NO.	120646.01

FIGURE 3

DUELL AND GARDNER LANDFILL
DALTON TOWNSHIP, MICHIGAN

JANUARY 10, 2006
GROUNDWATER ELEVATION MAP



RW-4

	12/14/04	4/26/05	7/20/05	1/11/06
nn-DMA	ND	4.7	ND	3.2
n-MA	ND	14	10	8

MW-14D

	12/14/04	4/27/05	7/21/05	1/12/06
nn-DMA	6.5	6.6	5.6	4.3
n-MA	140	150	130	110

RW-1

	12/17/04	4/26/05	7/21/05	1/12/06
CF	1.6	4.8	ND	3.6
CTC	9.2	9.3	2	11
DCB	6	5.8	ND	ND
TMU	13	25	ND	9.4

MW-14I

	12/15/04	4/27/05	7/21/05	1/12/06
n-MA	5	3.3	5.6	1.3
nn-DMA	13	14	7.3	9.9

MW-25S

	1/11/06
CF	1.8
CTC	39
DCB	150

RW-3

	12/17/04	4/26/05	7/21/05	1/12/06
CB	2.2	7.1	18	8.8
DCB	1.2	25	50	46
TMU	ND	10	15	6.4

MW-25I

	1/11/06
CTC	1.2
DCB	6.2

RW-5

	7/20/05	1/11/06
CF	3.2	ND
CTC	9	0.46
DCB	1.1	ND
TMU	15	ND

MAP MODIFIED FROM EARTH TECH PDI REPORT, NOV 1996 AND ADRIAN BROWN "PROPOSED PUMPING SCHEMATIC", MAY 2001.

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DATE 3/10/06
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REV NAM
PROJECT NO. 103081

FIGURE 4
DUELL AND GARDNER LANDFILL
DALTON TOWNSHIP, MICHIGAN

LABORATORY RESULTS FOR GROUNDWATER SAMPLES - JANUARY 11-12, 2006

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